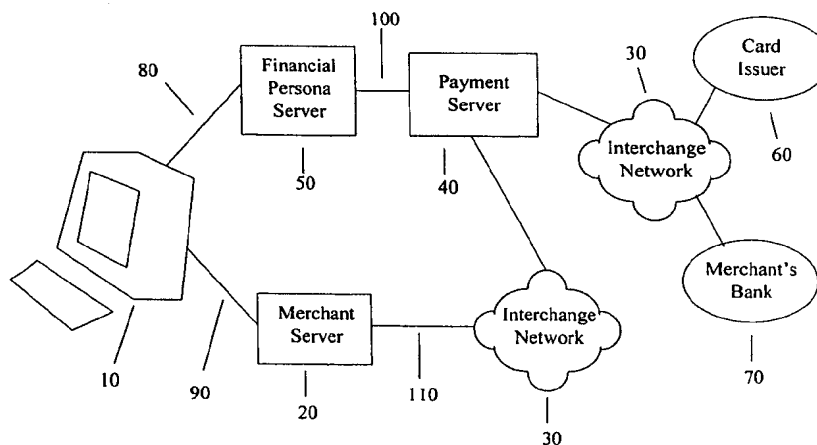




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/CA00/00056 (22) International Filing Date: 27 January 2000 (27.01.00) (30) Priority Data: 09/238,331                      27 January 1999 (27.01.99)                      US (71) Applicant (for all designated States except US): 724 SOLUTIONS INC. [CA/CA]; Suite 702, 4101 Yonge Street, Toronto, Ontario M2P 1N6 (CA). (72) Inventors; and (75) Inventors/Applicants (for US only): MCLELLAN, Kerry [CA/CA]; R.R.#1, Westfield, New Brunswick E0G 3J0 (CA). ERICKSON, Christopher [CA/CA]; 281 Bessborough Drive, Toronto, Ontario M4G 3K7 (CA). (74) Agents: PILLAY, Kevin et al.; Orange & Chari, 4900-55 King Street West, P.O.Box 190, Toronto Dominion Bank Tower, Toronto-Dominion Centre, Toronto, Ontario M5K 1H6 (CA).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	

(54) Title: SYSTEMS AND METHODS OF PAYING FOR COMMERCIAL TRANSACTIONS



## (57) Abstract

A payment system includes a financial persona server having a file stored therein which is configured to store user information. The information includes a choice of payment options. The system also includes a payment server connectable to the financial persona server and operable to request one of the payment choices from the financial persona server. The corresponding method includes providing the purchaser with an account on a financial persona server, an account number representing the account and a secure connection to the financial persona server. The method includes receiving, at a payment server, a message from the merchant, which identifies the transaction and a payment choice from the purchaser. If the financial persona server receives the authorization and the payment choice, it communicates the payment choice to the payment server over a secure link. The payment server receives the payment choice and forwards it over a secure link to a financial institution for further authorization. If the payment server receives authorization from the financial institution the payment server communicates an authorization code to the merchant.

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## SYSTEMS AND METHODS OF PAYING FOR COMMERCIAL TRANSACTIONS

**Field of the Invention**

The invention relates generally to the field of commerce and more particularly, to systems and methods for facilitating a secure method of payment for a commercial transaction which took place in a secure or unsecured environment.

**Background of the Invention**

Shared networks such as the Internet and smaller shared networks are rapidly being accepted as the future marketplace for goods and services. Many merchants are discovering that it is cheaper and more effective to offer their goods and services over the Internet rather than opening physical stores and paying sales people. While many merchants are only adding to their physical stores by opening virtual stores (e.g., web sites) on the Internet, other merchants such as EggHead Software™ etc. have closed all of their physical stores and replaced them with a virtual store on the Internet, while still others such as Amazon.com™ etc. are starting new companies on the Internet without ever opening a physical store.

An aspect of the Internet which is preventing it from completely taking over as the world marketplace is that consumers are still leery about transmitting their credit card numbers or any other payment information over the Internet or any unsecured medium. Many consumers are afraid that dubious people will intercept their transmission and use their credit cards or other payment information for unauthorized purchases.

Accordingly there exists the need for a system which provides the ability to make purchases over a secure or unsecured channel of commerce (e.g. the Internet, a crowded store, the Public Switched Telephone Network (PSTN) etc.) without the need to provide a credit card number or other information, which is directly linked to a payment method, over the channel of commerce.

There also exists the need for a system which enables a purchaser to select a payment method and authorize all payments made.

It is accordingly an object of the present invention to provide a system which enables consumers to make purchases over a secure or unsecured channel of commerce without the need to provide a credit card number or any other information, which is directly linked to a payment method, over the channel of commerce.

It is another object of the invention to provide such a system which enables a purchaser to select a payment method and to authorize all payments made.

These and other objects of the invention will become apparent to those skilled in the art from the following description thereof.

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### Summary of the Invention

It has now been discovered that these and other objects may be accomplished by the present system to facilitate a secure method of payment for a commercial transaction between a purchaser and a merchant. An embodiment of the invention includes a financial persona server configured to store information related to a purchaser, wherein the information includes a set of payment options. The financial persona server is accessible to the purchaser for selecting one of the payment options. The embodiment also includes a payment server selectively connected to the financial persona server and configured (i) to receive transaction information about the commercial transaction, (ii) to request one of the payment options from the financial persona server, and (iii) to receive the payment option selected and process that payment option.

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In another embodiment, the invention includes a storage device for storing purchaser payment options; and, a payment requesting device for requesting a payment option and an authorization from the storing device to pay for the commercial transaction.

20

In yet another embodiment, the invention includes a method for enabling a purchaser to select a method of payment, and authorize a commercial transaction, between the purchaser and a merchant. The method includes providing the purchaser with an account on a financial persona server, and providing the purchaser with an account number representing the account. The method further includes providing the purchaser with a secure connection to the financial persona server and enabling a set of payment options to be stored in the account. The payment server receives a message identifying the commercial transaction and the account number, and communicates the message to the financial persona server. The financial persona server requests an authorization and a payment choice from the purchaser. After the purchaser makes the choice, the financial persona server communicates the choice to the payment server over a secure link. The payment server receives the payment choice and forwards it over a secure link to a financial institution for further authorization.

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Another embodiment of the invention includes a method for enabling a purchaser to select a method of payment, and authorize a commercial transaction between the purchaser and a merchant. The method includes providing the purchaser with an account on a financial persona server and providing the purchaser with an account number representing the account. The method enables the purchaser to input, over a secure connection, a set of payment options into the account. The payment server receives a message identifying the commercial transaction and the account number and communicates the message to the financial persona server. The financial persona server requests an authorization and a payment choice from the purchaser. When the financial persona server receives a denial of the authorization from the purchaser, the financial persona server communicates the denial of authorization to the payment server which receives the denial of authorization and forwards it to the merchant.

The invention will next be described in connection with certain illustrated embodiments; however, it should be clear to those skilled in the art that various modifications, additions and subtractions can be made without departing from the spirit or scope of the claims.

15

#### **Brief Description of the Drawings**

For a fuller understanding of the nature and objects of the invention, reference should be made to the following detailed description and accompanying drawings, in which:

Fig. 1 depicts a schematic diagram of an electronic transaction system in accordance with the invention.

20

#### **Detailed Description of the Invention**

The present invention discloses systems and methods for enabling a purchaser to select a method of payment, and authorize a commercial transaction without the need to provide a merchant with the actual payment method. The present invention is particularly suited for electronic commerce over the Internet as it enables a purchaser to pay for the commercial transaction in a secure manner even though the transaction may have occurred over a channel of commerce which is not secure (i.e., the Internet). However, it is also applicable to other forms of commerce (e.g., mail order, telephone orders, in person transactions, paying for telephone calls, transactions over shared networks, etc). It is also applicable to secure transactions, in which case it merely adds another level of security to the transaction.

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Fig. 1 illustrates an embodiment of the present invention. The illustrated system may include a user/purchaser terminal 10 (terminal 10) which may be a computer terminal, an Internet compatible television, a pager, a cellular telephone, a personal digital assistant (PDA) or any other similar terminal 10. The terminal 10 may include a monitor, a conventional card reader (not shown) for reading conventional credit, debit and/or smart cards (also not shown) and some form of I/O device.

The system includes a financial persona server 50 (persona server 50) and a payment server 40. The persona server 50 may be a stand alone computer (preferred), an adjunct to the payment server 40, or one or more software program(s) running on the payment server 40. The payment server 40 may be a conventional payment server 40 currently used to process bank cards such as Visa, American Express, Master Card, Discover or the like and may be a part of the Interchange network 30. Those skilled in the art will recognize that a private or shared computer server could also be used as the payment server 50 without departing from the scope of the invention.

A purchaser is provided an account on the payment server 40 and an account number. The account may be used by the purchaser to store one or more credit/debit card numbers, bank account numbers, line of credit account numbers, or the like. These payment options may be the purchaser's accounts, a third party's accounts or a combination thereof. Further, the purchaser may have the ability to directly modify the information stored in the account, although such a feature is not required. It may also be possible to have a payment option which allows the purchaser to input a credit card number or some other payment method, not already stored, to pay for a transaction. In the event the purchaser has the ability to edit the payment options, the purchaser could be given the option to save this new payment method for future use. The account number preferably conforms to current credit card numbering standards although a system which provides account number which do not comply therewith would still fall within the scope of the present invention.

The merchant server 20 may be a privately owned server which the merchant operates. For security purposes, the merchant server 20 could be precluded from access to the persona server 50 or the information thereon. The merchant server 20 can be a web site which the merchant runs or it could be a web site that a third party operates for the merchant. It could also be a mail order business, a telephone order business, a physical store, etc. Further, the term

merchant is not limited to retail sellers of goods. This system could be employed to purchase services, or to pay for auctioned goods at an auction site such as Ebay™ or for almost any commercial transaction. An interesting use for this invention could be as a phone card. A problem with entering current phone card information into a public telephone is that there are  
5 dubious people who watch people keying their numbers into the public telephone, then use the information to pay for unauthorized calls. This invention would prevent such an occurrence since the account number entered is not directly tied to a financial source and thus would be of no use to an unauthorized user of the account number.

A typical transaction using this invention may occur in the following manner. A  
10 purchaser contacts a service provider to establish an account. The service provider furnishes the purchaser with an account on the persona server, an account number and a security certificate for accessing the account. The account number and security certificate could be provided in any of a number of ways. For example, they could be provided orally, in a letter, in an encrypted e-mail message, on a smart card, on a software package, on a downloadable file or some combination  
15 thereof.

To access the account, the purchaser "logs in" by using the terminal 10 and possibly software loaded thereon to establish a secure link 80 to the persona server 50 which may or may not require a security certificate. This secure link 80 could be a secure link via the Internet (e.g., a SET encrypted link, etc.), it can be a direct dial up link, it can be a link via a private or  
20 shared network, or any other secure link, or the purchaser could be provided an option of one or more of these connection choices.

If the link 80 is an Internet link, it is possible to concurrently maintain this link while contacting the merchant server 20. This may also be possible with the other options, however it would probably require additional hardware. Those skilled in the art will recognize that the  
25 link could be over a standard phone line, an ISDN line, a T1 line, a co-axial cable, a wireless data link, etc. or a combination thereof. The system could also operate by the purchaser logging in to the persona server 50 and the merchant server 20 at different times.

The purchaser provides the security certificate to the persona server 50 which identifies the purchaser and the account. This security certificate, which is preferably a Public Key  
30 Certificate but not required to be, could be provided to the persona server in a number of ways. It could be stored on a smart card then accessed via a card reader (preferred), it can be

programmed into software used to access the persona server 50, it can be entered into the software by the purchaser, it can be preprogrammed into the software, it can be keyed in by the purchaser or any combination of these methods. Depending upon design choices, the purchaser may be limited to a particular terminal for accessing the account, or the purchaser may be allowed to use a variety of terminals.

After the purchaser connects to the persona server 50 he/she may be able to enter one or more payment options. Once the options are entered, it is preferable but not required that the purchaser be given the ability to modify the options; to either remove a payment option, add a payment option or update a payment option. It is also considered within the scope of the invention that the purchaser could make an initial selection of payment options when the purchaser signs up which would be entered by the service provider. In such a situation, any changes to the payment options could be required to be provided to the service provider and entered thereby. However, it is also possible to give the purchaser the ability to directly modify some or all of the information.

Once the purchaser has an account, he/she may commence with the commercial transaction. In the embodiment wherein the purchaser logs onto the Internet, the purchaser may log onto a merchant server 20 and make a purchase. The purchase could be made from that merchant or from a third party who provides goods and/or services from the merchant server 20. Once the price is agreed upon for the transaction, either by negotiation or payment of a listed price, the purchaser provides the account number to the merchant server 20. This could be provided in any number of ways (e.g. via the Internet, telephone, e-mail, the postal service, facsimile, etc.).

In the embodiment wherein the account number conforms to the current credit/debit card numbering system, the merchant server 20 may treat the sale like it would any other credit/debit card purchase. It sends the card number and the amount of the sale to a bank interchange network 30 for authorization. It does this via link 110. While currently, link 110 is a secure link, it is not necessary since the account number provided to the merchant does not have any money linked to it. Thus, even if one were to intercept the account number it would be to no avail. Thus, the route from the merchant server 20 to the payment server 40 does not have to be via the same Interchange network 30 as the Interchange network 30 between the payment server 40 and the card issuer 60 and bank 70 (although it preferably will be). The route from the



merchant server 20 to the payment server 40 could be via a secure or unsecured route (e.g., it could be via the Internet, the bank interchange network, the PSTN, some other route, or some combination thereof).

5 The bank interchange network 30 is a bank card processing network such as those used for Visa, MasterCard, etc. which recognizes the banking institution information contained within the card number. For example, the first four digits of the card number may contain the card issuer bank identification. This information is recognizable by all conventional systems and serves to route the transaction to the appropriate payment institution. Thus, the merchant server 20 need not know that the card number provided by the purchaser is not linked to a  
10 financial instrument. The bank interchange network 30 routes the transaction to the relevant bank payment server 40. The payment server 40 then hands off the electronic transaction to the financial persona server 50. If the purchaser is logged on to the persona server 50, the persona server may cause a query screen to be displayed on the terminal 10. The query screen could inform the purchaser of the purchase price and request authorization and a method of  
15 payment. If the purchaser refuses authorization, (e.g. purchaser changed his/her mind, or the transaction was fraudulent) either a denial or a denial with a reason is returned to the payment server which in turn returns an authorization denial to the merchant server 20 (with or without a reason).

If the purchaser wishes to allow the transaction and the purchaser's account has been  
20 configured with different payment options, the purchaser then chooses one of the options previously entered. This payment information is returned to the payment server 40 via secure link 100. It is also possible that one of the payment options is to enter payment information not previously entered (e.g., credit/debit card, etc.). Depending upon design choices, the purchaser could be required to enter an authorization code in addition to the payment selection or the  
25 payment choice could also be used as the authorization code. Once the payment server receives the payment choice it routes the payment information and the transaction information to the card issuer 60 for authorization. If it receives the requested authorization, it provides an authorization code to the merchant server 20 and the transaction may be completed by the merchant. If the payment method is rejected by the card issuer (either for insufficient funds or some other reason)  
30 either the merchant server 20 could be provided with the rejection, the merchant server 20 and the persona server 50 could be provided with this rejection or the persona server could be

provided with this rejection and the purchaser could be given the opportunity to choose another form of payment or cancel the transaction.

It is conceivable that the purchaser is not logged on to the persona server 50 while the transaction is taking place. Thus, the purchaser might not be logged on when the payment server 40 forwards the request to the persona server 50. If this occurs, the persona server could be programmed to buffer the request until the purchaser logs on again. it could be programmed to locate the purchaser (e.g. through a paging system, a distinctive ring on a telephone, a call to a cell phone, e-mail, a short messaging service (SMS) message, etc. or a combination of these), it could be programmed to deny any such transaction or accept all such transactions depending upon the choices made by the purchaser, or it could be programmed to accept all such transactions which are below a predetermined threshold amount and perform one of the previous options for all other transactions. The action taken is strictly a design choice. In the event the persona server is programmed to locate and notify the purchaser, it is possible that the purchaser is given the ability to respond directly to the notification without having to log on to the server.

It will thus be seen that the invention efficiently attains the objects set forth above, among those made apparent from the preceding description. In particular, the invention provides a system and method for facilitating a secure payment for a commercial transaction whether the transaction occurred over a secure or unsecured channel of commerce. Those skilled in the art will appreciate that the configuration depicted in Fig. 1 discloses a system which allows a purchaser to make a purchase over a channel of commerce which may or may not be secure, provide the merchant with an account number which appears to the merchant as a regular credit/debit card account, then choose a payment option and communicate that option to a financial institution via a secure network. The level of security offered by the invention depends upon the level of security established between the purchaser and the persona server thereby removing the requirement of a secure channel of communication between the purchaser and the merchant.

It will be understood that changes may be made in the above construction and in the foregoing sequences of operation without departing from the scope of the invention. It is accordingly intended that all matter contained in the above description or shown in the accompanying drawings be interpreted as illustrative rather than in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention as described herein, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described the invention, what is claimed as new and secured by Letters Patent is:

## CLAIMS

1. A system to facilitate a secure method of payment for a commercial transaction between a purchaser and a merchant, comprising:

a financial persona server configured to store information related to a purchaser, wherein said information includes a plurality of payment options: said financial persona server being accessible to said purchaser for selecting one of said plurality of payment options: and,

a payment server selectively coupled to said financial persona server and configured to receive transaction information about said commercial transaction, to request one of said plurality of payment options from said financial persona server, to receive said one of said payment options and to process said payment option.

2. The system according to Claim 1 further comprising:

a purchaser terminal selectively coupled to said financial persona server over a secure link and operable for transmitting a security certificate to said financial persona server, wherein said security certificate identifies said purchaser.

3. The system according to Claim 2 further comprising:

a card including said security certificate and information for accessing said information related to said purchaser; and

a card reader coupled to said purchaser terminal.

4. The system according to Claim 2 further comprising:

a merchant server selectively coupled to said payment server;

wherein said information related to said purchaser is represented by an account number;

wherein said purchaser terminal is configured to selectively connect to said merchant

server;

wherein said merchant server is configured to receive said account number from said purchaser terminal and forward said account number along with said transaction information to said payment server.

5. The system according to Claim 4 wherein:

said merchant server comprises a web site on the Internet; and,

said connection to said payment server is over a secure network.

6. The system according to Claim 2 wherein said secure link is encrypted by public key infrastructure.

5 7. A method for enabling a purchaser to select a method of payment, and authorize a commercial transaction, between the purchaser and a merchant, comprising:

providing the purchaser with an account on a financial persona server;

providing the purchaser with an account number representing said account;

providing the purchaser with a secure connection to said financial persona server;

10 enabling a plurality of payment options to be stored in said account;

receiving, at a payment server, a message identifying said commercial transaction and said account number;

said payment server communicating said message to said financial persona server;

15 said financial persona server requesting an authorization and a payment choice from the purchaser;

said financial persona server communicating said payment choice to said payment server over a secure link;

said payment server receiving said payment choice and forwarding said payment choice over a secure link to a financial institution for further authorization; and

20 said payment server receiving said further authorization from said financial institution, and communicating an authorization code to said merchant and to said financial persona server.

8. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 wherein said financial persona server requesting an authorization and a payment choice from the purchaser comprises said financial persona server locating said purchaser and notifying said purchaser of said request.

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9. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 wherein:

30 said plurality of payment options include a credit card number; and,

said financial institution includes an issuer of a credit card having said credit card number.

10. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 wherein:

said plurality of payment options include a debit card number; and,  
said financial institution includes an issuer of a debit card having said debit card number.

11. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 further comprising:

providing the purchaser with the ability to change said plurality of payment options.

12. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 further comprising:

providing said user with a smart card;  
wherein said smart card includes said account number; and,  
wherein said smart card includes a security certificate.

13. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 wherein:

said merchant comprises an Internet web site; and  
while said purchaser is connected to said financial persona server;  
said purchaser connecting to said merchant web site via an Internet link; and,  
said purchaser providing said merchant web site with said account number as  
payment for a transaction.

14. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 wherein:

said account number conforms to credit card number standards.

15. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 7 wherein said financial persona server comprises an adjunct to said payment server.

5 16. A method for enabling a purchaser to select a method of payment, and authorize a commercial transaction between the purchaser and a merchant comprising:

providing the purchaser with an account on a financial persona server;

providing the purchaser with an account number representing said account;

enabling the purchaser to input, over a secure connection, a plurality of payment options

10 into said account;

receiving, at a payment server, a message identifying the commercial transaction and said account number;

said payment server communicating said message to said financial persona server;

said financial persona server requesting an authorization and a payment choice from the

15 purchaser;

when said financial persona server receives a denial of said authorization from the purchaser, said financial persona server communicates said denial of authorization to said payment server;

said payment server receiving said denial of authorization and forwarding said denial of  
20 authorization to said merchant.

17. The method for enabling a purchaser to select a method of payment, and authorize a commercial transaction according to Claim 16 wherein said financial persona server requesting an authorization and a payment choice from the purchaser comprises said financial persona  
25 server locating said purchaser and notifying said purchaser of said request.

18. A system for enabling a purchaser to select a method of payment, and authorize a commercial transaction, between the purchaser and a merchant, comprising:

storage means for storing purchaser payment options; and,

30 payment requesting means for requesting a payment option and an authorization from said storing means to pay for said commercial transaction.

19. The system according to Claim 18 further comprising:  
user terminal means for accessing said storing means via a secure link.
20. The system for enabling a purchaser to select a method of payment, and authorize a  
5 commercial transaction according to Claim 18 further comprising:  
financial authorization means for receiving said payment option from said payment  
requesting means and confirming the availability and allowability of access to funds to pay for  
said transaction.
- 10 21. The system for enabling a purchaser to select a method of payment, and authorize a  
commercial transaction according to Claim 18 further comprising:  
paging means coupled to said financial persona server for paging a purchaser who is not  
connected to said financial persona server to notify said purchaser of a payment request from said  
payment requesting means.

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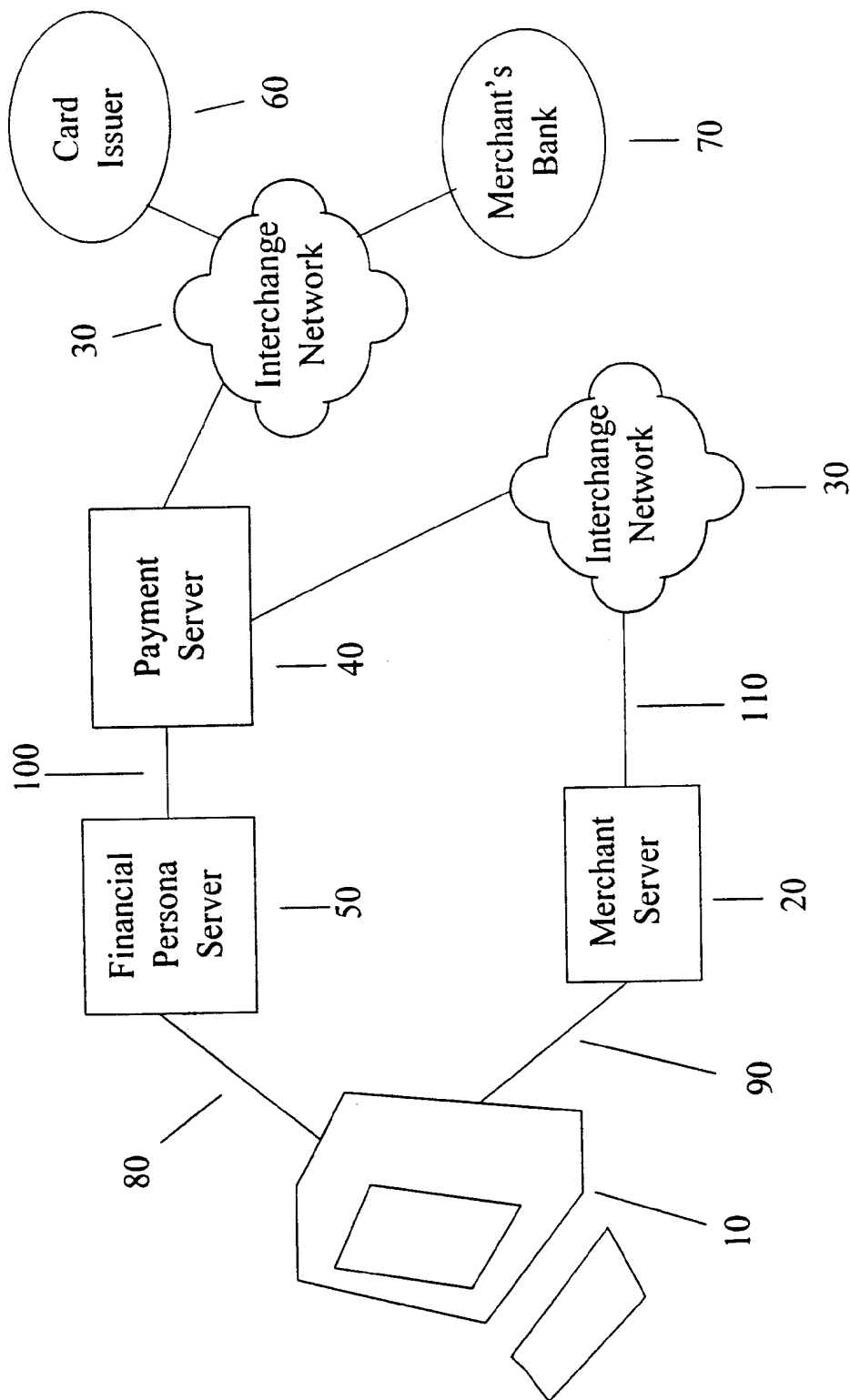


FIG. 1

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 00/00056

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G07F19/00 G06F17/60

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G07F G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	WO 99 05633 A (MAIN STREET MARKETING) 4 February 1999 (1999-02-04) the whole document	1-21
A	WO 96 38799 A (AMAZON COM INC) 5 December 1996 (1996-12-05) abstract	1-21
A	WO 98 34203 A (QUALCOMM INC) 6 August 1998 (1998-08-06) page 6 -page 8; figures 1-6	1-21

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

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Date of the actual completion of the international search

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Closa, D

# INTERNATIONAL SEARCH REPORT

Information on patent family members

In ternational Application No

PCT/CA 00/00056

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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